



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/602,100	06/23/2003	David Keating	681331-96	7262
23879	7590	02/21/2006	EXAMINER	
BRIAN M BERLINER, ESQ O'MELVENY & MYERS, LLP 400 SOUTH HOPE STREET LOS ANGELES, CA 90071-2899			CHAMBLISS, ALONZO	
			ART UNIT	PAPER NUMBER
			2814	

DATE MAILED: 02/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/602,100

Applicant(s)

KEATING, DAVID

Examiner

Alonzo Chambliss

Art Unit

2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 29 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-12, 35 and 37-39 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 5 and 10 is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-9, 11, 12, 35 and 37-39 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. The amendment filed on 11/29/05 has been fully considered and made of record in the instant application.

### ***Response to Arguments***

2. Applicant's arguments with respect to claims 1-4, 6-12, 35, and 37-39 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 2, 4, 6-9, 11, 12, 35, and 37-39 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Pak (US 5,229,640).

With respect to Claims 1 and 35, Pak teaches a plurality of connection bars including at least one permanent connection bar (i.e. any one of 71-77) and at least one temporary connection bar 48. A plurality of leads 12, 22, 24, 28, or 48 are located about a periphery of the lead frame substrate 42 of strip 40. A plurality of semiconductor die pads 64 being adapted to receive a semiconductor die 30. A plurality of termination pads (i.e. any one of 62, 66, 68) being electrically linked together and to the semiconductor die pad 64 by at least one of the plurality of connection bars (i.e. any one

of 71-77), wherein each one of the plurality of termination pads (i.e. any one of 62, 66, 68) being adapted to receive at least one of a passive component 20 and a bonding wire. The at least one permanent connection bar (i.e. any one of 71-77) providing an electrical connection between selected ones of the termination pads (i.e. any one of 62, 66, 68). The at least one temporary connection bar 48 provides temporary structural integrity of the lead frame substrate 42. A molding compound 50 fixing the semiconductor die pad 64, the plurality of termination pads (i.e. any one of 62, 66, 68), and the plurality of connection bars (i.e. any one of 71-77) together, thereby permitting subsequent removal of the at least one temporary connection bar 48 (see col. 3 lines 29-68 and col. 4 lines 1-50; Figs. 2, 3, and 4A-4C).

With respect to Claim 2, Pak teaches wherein the semiconductor die pad, the plurality of termination pads, and the plurality of connection bars comprise a thermally and electrically conductive material (see col. 3 lines 43-54).

With respect to Claim 4, Pak teaches wherein the semiconductor die pad, the plurality of termination pads, and the plurality of connection bars include a top and bottom surface (see Figs. 2, 3, and 4A-4C).

With respect to Claims 6 and 39, Pak teaches wherein the frame including the a plurality of leads, the plurality of connection bars, the plurality of semiconductor die pads, and the plurality of termination pads have a unitary construction from a common piece of conductive material (see col. 3 lines 40-61; Figs. 2, 3, and 4A-4C).

With respect to Claim 7, Pak teaches a plurality of leads around a periphery of the lead frame substrate (see Figs. 2 and 3).

With respect to Claims 8 and 37, Pak teaches wherein the plurality of connection bars electrically couple the plurality of semiconductor die pads to the plurality of termination pads (see Figs. 2 and 3).

With respect to Claim 9, Pak teaches wherein the plurality of connection bars electrically couples the plurality of termination pads together (see Figs. 2 and 3).

With respect to Claim 11, Pak teaches wherein the temporary connection bars are adapted to be removed from the lead frame substrate after the molding compound has fixed the semiconductor die pad, wherein the plurality of termination pads, and the plurality of connection bars together (see col. 3 lines 53-61).

With respect to Claims 12 and 38, Pak teaches wherein the lead frame substrate comprises a substantially uniform thickness (see col. 3 lines 40-55; Figs. 2 and 3).

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pak (US 5,229,640) as applied to claim 1 above, and further in view of Sakamoto et al. (US 6,624,511).

With respect to Claim 3, Pak discloses the claimed invention except for conductive material of the pads and bars being made of copper. However, Sakamoto

discloses that conductive material of the pads and bars can be made of copper (see col. 9 lines 53-55). Thus, Pak and Sakamoto have substantially the same environment of a chip attached to a lead frame by wires, wherein the lead frame comprise a plurality of permanent and temporary connection bars. Therefore, one skilled in the art at the time of the invention would readily recognize utilizing copper for the material of the pads and bars, since copper provides a reliable material electrical connection between a chip and a lead frame as taught by Sakamoto.

The prior art made of record and not relied upon is cited primarily to show the product of the instant invention.

#### ***Allowable Subject Matter***

7. Claims 5 and 10 are allowable over the prior art.

The following is a statement of reason for the indication of allowance subject matter: the prior art of record does not teach or suggest the combination of the molding compound leaves the top and bottom surfaces uncovered.

#### ***Conclusion***

8. Any inquiry concerning the communication or earlier communications from the examiner should be directed to Alonzo Chambliss whose telephone number is (571) 272-1927.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-7956

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system Status information for published applications may be obtained from either Private PMR or Public PMR. Status information for unpublished applications is available through Private PMR only. For more information about the PMR system see <http://pair-dkect.uspto.gov>. Should you have questions on access to the Private PMR system contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free) or [EBC\\_Support@uspto.gov](mailto:EBC_Support@uspto.gov).

AC/February 12, 2006

A handwritten signature in black ink, appearing to read "Alonzo Chambliss". The signature is stylized with a large, looped "O" and a long, sweeping underline.

Alonzo Chambliss  
Primary Patent Examiner  
Art Unit 2814